

Governor's Water Augmentation, Innovation, and Conservation Council Legal & Regulatory Subcommittee of the Desalination Committee Regulatory Background & Summary of Discussion

The Legal and Regulatory Subcommittee of the Governor's Water Augmentation, Innovation, and Conservation Council's Desalination Committee was tasked to identify the legal and regulatory barriers to the increased use of brackish, or poor quality, groundwater supplies in Arizona. The subcommittee met once. The issues raised and discussed by the subcommittee are summarized in this document.

To be clear, there are no legal or regulatory constraints specific to the use of *brackish* or *poor quality* groundwater in Arizona law. Brackish or poor quality groundwater is not specifically defined in Arizona statute. With few exceptions, statutes in Title 45 governing the use of groundwater do not make distinctions based on groundwater quality, and in such cases that they do, it is to set forth legal parameters for when a permit may be issued for the use of poor quality groundwater. Most of the legal and regulatory barriers to the increased use of brackish groundwater that were identified by the subcommittee, are, in fact, limitations to the use and transportation of groundwater. Permitting for brine waste disposal has been discussed by the Desalination Committee and is also addressed in this summary.

Limitations to Groundwater Use

The 1980 Groundwater Management Act was enacted in response to the overdraft of groundwater supplies—regardless of quality—that threatened the economy and welfare of the state and its citizens. The aim of the Act is to "*conserve, protect and allocate the use of groundwater resources of the state and to provide a framework for the comprehensive management and regulation of the withdrawal, transportation, use, conservation and conveyance of rights to use the groundwater in this state.*"¹

Groundwater regulation is most extensive in the AMAs. Within the AMAs, groundwater rights were created and quantified, bringing new irrigated agricultural land into production is prohibited, and annual reporting of groundwater use from non-exempt wells is required.

Management goals were established for the AMAs. The goal for the Phoenix, Prescott, and Tucson AMAs is to reach and maintain "safe-yield"—a long term balance between annual withdrawals and recharge—by January 1, 2025.²

The Arizona Department of Water Resources is charged to develop and implement a series of five management plans to assist the AMAs in reaching their management goals. The Department is required to include a "continuing mandatory conservation program for all persons withdrawing, distributing or receiving groundwater designed to achieve reductions in withdrawals of groundwater" in each of the plans.³

The Assured Water Supply Program requires developers to demonstrate several criteria before recording plats or selling parcels within an AMA: the physical, continuous, and legal availability of a 100-year water supply; the financial capability to treat and deliver the supplies; that water quality requirements will be met; and that the supply will be consistent with the management goal of the AMA.⁴ Within an AMA, poor

¹ A.R.S. § 45-401(B)

² A.R.S. § 45-562(A)

³ A.R.S. § 45-563

⁴ A.R.S. § 45-576

quality groundwater is not a new water source that can be used to prove physical availability; it is a portion of all groundwater already accounted for in any Assured Water Supply model.

Exceptions for the use of poor quality groundwater

There are two sections within the Code that reference the use of “poor quality” groundwater, enabling the use of groundwater beyond what would otherwise be allowable within the AMAs, with significant limitations.

A.R.S. § 45-132 prohibits filling or re-filling bodies of water for landscape, scenic or recreational purposes; however, a person can apply to the director for a permit to use “poor quality” groundwater for that purpose. In accordance with A.R.S. § 45-132(C), the director may issue a permit if the applicant demonstrates that all of the following apply:

1. The applicant otherwise has a right to use the proposed source of groundwater for the proposed purpose.
2. The groundwater because of its poor quality cannot be used for another beneficial purpose at the present time and it is not economically feasible to treat and transport the groundwater and use it for another beneficial purpose.
3. The withdrawal of the groundwater is consistent with the management plan and achievement of the management goal for the active management area.

The director may allow a permit for this purpose to be issued for a period of up to thirty-five years. The director must determine the duration of the permit on the basis of the estimated life of the source of poor quality groundwater and the potential for future beneficial use. The director is required to monitor the use of groundwater pursuant to the permit and must terminate the permit if any of the conditions for issuance of the permit no longer applies.

A.R.S. § 45-516 also allows for the issuance of poor quality groundwater withdrawal permits (PQGWP), again with limitations.

- A. The director may issue a permit to a non-irrigation user to withdraw poor quality groundwater if he determines that the groundwater to be withdrawn because of its quality has no other beneficial use at the present time and that the withdrawal of such groundwater is consistent with the management plan.
- B. A permit issued pursuant to this section may be issued for a period of up to thirty-five years, subject to subsection C. The director shall determine the duration of the permit on the basis of the estimated life of the source of poor quality groundwater.
- C. The director shall monitor withdrawals of groundwater pursuant to poor quality groundwater withdrawal permit and shall terminate the permit if the conditions specified in subsection A no longer apply.

Buckeye Waterlogged Area

The subcommittee focused considerable discussion on an area in the Phoenix AMA commonly known as the Buckeye Waterlogged Area (BWLA). Within this area, because of the shallow depth to water, irrigators have historically dewatered in order to sustain agricultural activities. Due to the unique waterlogged

circumstances of this area, exemptions have been provided to certain groundwater users through December 31, 2034.

A.R.S. § 45-411.01 provides an exemption from irrigation or intermediate water duties and groundwater withdrawal fees through December 31, 2034. The Arlington canal company, the Buckeye Water Conservation and Drainage District, and the St. John's Irrigation District, or their successors, are exempt from any applicable conservation requirements for the distribution of groundwater established in the management plans through December 31, 2034.

The director is required to review the hydrologic conditions within the area and submit a recommendation to the governor and legislature not later than November 15, 2031, regarding extension of the exemptions.

A.R.S. § 45-519 provides that a person may apply for and the director may issue a drainage water withdrawal permit if the director determines that drainage of irrigated lands is necessary for a reasonable economic return from agricultural production in respect to those lands and the withdrawal of such groundwater is consistent with the management plan and achievement of the management goal for the active management area. The holder of such a permit may:

1. Use groundwater withdrawn pursuant to the permit for a non-irrigation use if the person holds a non-irrigation grandfathered right, a general industrial use permit, or a service area right.
2. Convey groundwater withdrawn pursuant to the permit to another person for a non-irrigation use if the person receiving the groundwater holds a non-irrigation grandfathered right, a general industrial use permit, or a service area right.

When determining compliance with the applicable conservation requirements, the director must account for groundwater withdrawn pursuant to a drainage water withdrawal permit in the same manner as surface water if the groundwater is withdrawn before January 1, 2035, from within the boundaries of the exempted area and is used at a turf related facility or riparian habitat within the exempted area. The director must cease accounting for the groundwater in the same manner as surface water on expiration of the exemptions provided for in A.R.S. § 45-411.01 or on termination of the permit, whichever occurs first.

The director must monitor withdrawals of groundwater pursuant to a drainage water withdrawal permit and terminate the permit if the conditions for issuance no longer apply. A permit issued pursuant to this section may be renewed subject to the same criteria used in granting the original permit.

This exemption only applies to users in the BWLA area due to the unique waterlogging conditions, not due to the brackish water conditions. The upper aquifer units in many areas of the central and south region of the state contain high TDS or brackish groundwater, largely as a consequence of historic agricultural land use practices.

Limitations to Groundwater Transportation

Statewide, groundwater law provides that a person may: 1) withdraw and use groundwater for reasonable and beneficial use, except as provided in the groundwater transportation statutes, and 2) transport groundwater pursuant to the transportation statutes.

The Arizona Groundwater Transportation Act of 1991, with certain amendments, is in effect today. The Act prohibits the transportation of groundwater to another basin or sub-basin, or from an area outside an AMA to an AMA, unless specifically authorized. These restrictions are intended to protect local interests

and to ensure groundwater is not depleted in one groundwater basin to benefit another. These protections limit the ability to use groundwater transfers from one area to augment another area's supply, regardless of quality. The law allows for limited exceptions to these restrictions, under specific statutory conditions that are unique to each exception.⁵

Exceptions for the transportation of groundwater from a basin outside of an AMA into an AMA:

1. McMullen Valley Groundwater Basin into the Phoenix AMA

- a. Groundwater can be transported into the Phoenix AMA by:
 - i. Phoenix from the land it purchased in 1986 (no longer applies).
 - ii. A person who purchased historically irrigated land before 1988 in the portion of the basin located in Maricopa County (1994 amendment).
 - iii. Any city, town or private water company that purchases the land from an entity described above.
- b. Groundwater can be used by any city, town or private water company or the Arizona Water Banking Authority for firming Indian water supplies.
- c. Maximum amount of groundwater that may be transported: annual average of 3 acre-feet (af) per historically irrigated acre (6 million af in total).
- d. Maximum depth: 1,200 feet below land surface (bls) for assured water supply purposes.

2. Butler Valley Groundwater Basin into any AMA

- a. Groundwater may be withdrawn from land owned by the state or a political subdivision of the state and transported to an AMA.
- b. No volume or depth limitations, but ADWR's rules limit depth to 1,000 bls (1,100 feet for Pinal AMA) for assured water supply purposes.
- c. No restrictions on who may use the groundwater.

3. Harquahala INA into any AMA

- a. The state or a political subdivision that owns lands eligible to be irrigated may transport groundwater from the land to any AMA for its own use. A 2006 amendment also allows the groundwater to be used by the Arizona Water Banking Authority for firming Indian water supplies.
- b. Maximum volume of groundwater that may be transported annual average of 3 af per eligible acre.
- c. Director may allow greater volume if it will not cause unreasonably increasing damage to other water users.
- d. Maximum depth from which groundwater may be withdrawn is 1,000 feet bls.

4. Big Chino Sub-Basin of Verde River Groundwater Basin into the Prescott AMA

- a. Not applicable to these specific constituent concerns.

⁵ A.R.S. §§45-541 through 45-559

Groundwater transported into an AMA pursuant to one of these four exceptions is subject to payment of damages to injured landowners.

Exceptions for transportation of groundwater from a groundwater basin outside of an AMA to another basin outside of an AMA, subject to the payment of damages:

1. Transportation occurring as of January 1, 1993 may continue and expand (an example of this would be the investigation the Department conducted in January 2019 into groundwater transportations between McMullen Valley Basin and the Harquahala Basin).
2. A city, town, or private water company whose service area is in two adjacent basins and who served customers in both basins as of July 1, 1993, may transport groundwater between the basins.
3. Water may be transported for mineral extraction and processing (except from the Parker or Little Colorado River Plateau Basins).

Aquifer Protection

Arizona law classifies all aquifers in the state as drinking water aquifers and prohibits the degradation of the water quality of those aquifers. This effectively prohibits the use of deep well injection for the disposal of waste streams from desalination of poor quality groundwater supplies.

An aquifer's classification may be changed, however, as provided in A.R.S. § 49-224(C). The director, after consulting with the appropriate groundwater users advisory council, if the aquifer is in an active management area, and a public hearing, may change the classification of an aquifer or part of an aquifer for a protected use other than drinking water on making all of the following findings: the aquifer or part of the aquifer is hydrologically isolated, the aquifer is not used to supply drinking water, and the benefits resulting from water quality degradation outweigh the long-term costs of that degradation.

A.R.S. § 49-224(D) allows owners or operators of facilities whose discharges are solely responsible for creating an aquifer to petition for a classification of the aquifer for a non-drinking use, if the aquifer or part of the aquifer is hydrologically isolated, and if the aquifer is not used to supply drinking water.

The process of obtaining approval to degrade groundwater quality in an aquifer to enable brine disposal likely would not be easy, but it is possible.

Deep well injection currently requires both an Underground Injection Control (UIC) permit from the U.S. Environmental Protection Agency (EPA) and an APP from ADEQ.

Class I Industrial and Municipal Waste Disposal Wells are used to inject hazardous and non-hazardous wastes into deep, confined rock formations. Class I wells are typically drilled thousands of feet below the lowermost underground source of drinking water (USDW). Approximately 800 operational Class I wells exist in the United States. The geologies of the Gulf Coast and the Great Lakes areas are best suited for these types of wells which is why most Class I wells are found in there.

Every Class I well operates under a UIC permit. Each permit is valid for up to 10 years. Owners and operators of Class I wells must meet specific requirements to obtain a permit. These requirements address the siting, construction, operation, monitoring and testing, reporting and record-keeping, and closure of Class I wells. (USEPA). Permitting would require hydraulic modeling to determine where brine can be stored safely and would involve pilot testing of injection wells and monitoring. Legislation that would exempt UIC wells from an APP is likely to be enacted in 2021.

To date, Arizona providers exploring options for the disposal of waste streams from brackish groundwater desalination have not identified potential locations suitable for deep well injection, nor have they identified it as a cost effective option. The *Long-Term Water Augmentation Options for Arizona* report noted several issues to address in preparation for future deep well injection of brine:

- ADEQ will need to work with stakeholders to develop standards, protocols, and best management practices that applicants can use to develop a permitting process that is in compliance with the Arizona Aquifer Protection Program (APP).
- ADWR will need to work with stakeholders to develop and/or modify, as appropriate, injection well construction and testing standards.
- Arizona stakeholders should participate in the Environmental Protection Agency's (EPA) underground injection control (UIC) primacy stakeholder process and ensure that implementation of a combined APP/UIC program provides for deep brine injection under appropriate conditions.

Points of subcommittee discussion:

The subcommittee discussed means and desirability of enabling additional groundwater use by leveraging or expanding the exemptions for waterlogging and poor quality groundwater permits and removing limitations imposed by the Groundwater Code or transport statutes.

- Lengthen the designation period for the BWLA. The uncertainty of whether the waterlogged conditions in the area will persist and the BWLA will continue to retain exemptions is a concern.
- Use water from the BWLA, in exchange perhaps, to displace water that could be used for groundwater replenishment by the CAGR.
- Address state law to enable water from the BWLA to be moved to where it is needed and deployed in a way that is acceptable for Assured Water Supply principles.
- Modify the Assured Water Supply rules or statutes to facilitate/incentivize use of brackish water to higher and better means.
- Provide incentives. Provide financial relief from the expense to treat and move brackish groundwater or other incentives to enable the use of brackish groundwater.
- Define “poor quality groundwater.” The lack of definition makes the outcome of a poor quality groundwater permit application uncertain. Defining a TDS level at which groundwater is classified as poor quality could enable more poor quality groundwater permits to be issued, particularly if the requirement that it has no other beneficial use were eliminated.
- Designate poor quality groundwater as a different class of groundwater. Provide an exemption for groundwater of a certain TDS level from the limitations of the Groundwater Code.
- Eliminate the replenishment obligation for brackish groundwater.
- In an area that is exempt from consistency with the management goal—i.e. the BWLA—a poor quality groundwater permit would allow groundwater withdrawals without a replenishment obligation.
 - Under current state law, does the brackishness of this groundwater mean it is available for exploitation from anyone who would want to take it? If that is the case, is that a proper regulatory safeguard for those that would be negatively impacted by that existing

state law? Enabling additional use could change groundwater conditions in this area and potentially threaten the waterlogged exemption and impact the existing right holders.

- Additional pumping in the area could lower water levels, forcing the current users to deepen their wells, creating economic hardship. The existing statute is a significant threat to the ability to continue farm the land as it has been for more than a century.
- The existing agricultural users in the BWLA view the groundwater as a component of a property right, considering it to be surface water. As such, it is not available to anyone who wants to remove it, or profit from it, or utilize it for their own economic benefit.
- Although currently regulated as groundwater, the idea the water in the BWLA will always be considered groundwater is speculative. The irrigation districts argue they are pumping subflow. It would be a risk to construct a large scale operation under the assumption of exploiting this resource under groundwater law without considering the impact of surface water law.
- Poor quality water is no less valuable than potable water. Targeting this water as less valuable, or as if it is available to someone else, is not a good path forward. The issue is sustainability; not what community we can take water from.
- If water is withdrawn in any large quantity, in excess of what is already used, it will affect another user's physical availability. Brackish groundwater is still groundwater, and it is already relied upon.
- State law could be changed to address transportation issues, enabling the movement and deployment of brackish groundwater supplies to meet the physical availability requirement of the Assured Water Supply Program.
 - Identifying the implications of transportation and the physical availability of water will be key in discussions moving forward, particularly within urbanized areas of the state.
 - The Central Arizona Groundwater Replenishment District (CAGRD) cannot use groundwater that is within the AMAs as a replenishment supply, but CAGRD can use a groundwater supply within a basin that is eligible for transportation as a source of replenishment.
 - Transportation of groundwater of any quality out of a basin or out from under a community for use by others somewhere else will be an issue.
- Expanding exemptions for groundwater use or incentivizing use of groundwater supplies conflicts with the purpose of the Groundwater Management Act and with the charge of the Post-2025 AMAs Committee and the Non-AMAs Groundwater Committee, both of which are tasked to address challenges to sustainable groundwater management.